Butterfly Valve with ANSI Class 300 Lug types

- **Disc 316 stainless steel**
- **Bubble tight shut-off**
- **Teflon seat**
- **Valve face-to-face dimensions comply with API 609 & MSS-SP-67**
- **For use with dead-end service**
- **Completely assembled and tested, ready for installation**

5-year warranty

Type overview

Type	DN
F6100-300SHP	100

Technical data

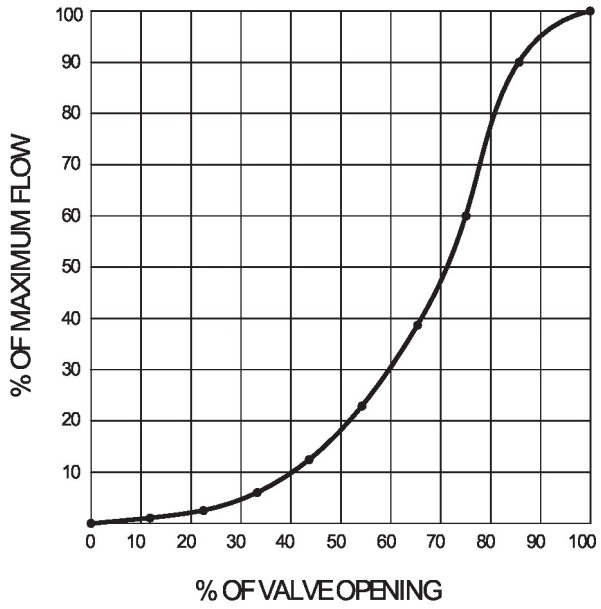
Functional data	Valve size [mm]	4" [100]
	Fluid	chilled or hot water, up to 60% glycol, steam
	Fluid Temp Range (water)	-22...400°F [-30...204°C]
	Body Pressure Rating	ANSI Class 300
	Close-off pressure Δps	285 psi
	Flow characteristic	modified equal percentage, unidirectional
	Pipe connection	Flange for use with ASME/ANSI class 300
	Servicing	maintenance-free
	Flow Pattern	2-way
	Leakage rate	0%
	Controllable flow range	quarter turn, mechanically limited
	Cv	451
	Maximum Inlet Pressure (Steam)	50 psi
	Maximum Velocity	32 FPS
	Lug threads	3/4-10 UNC
Materials	Valve body	Carbon steel full lug (ASME B16.34)
	Stem	17-4 PH stainless steel
	Seat	RPTFE
	Bearing	glass backed PTFE
	Disc	316 stainless steel
Suitable actuators	Non Fail-Safe	GMB(X) 2*GMB(X) PRB(X)
	Electrical fail-safe	2*GKB(X) PKRB(X)

Safety notes

- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

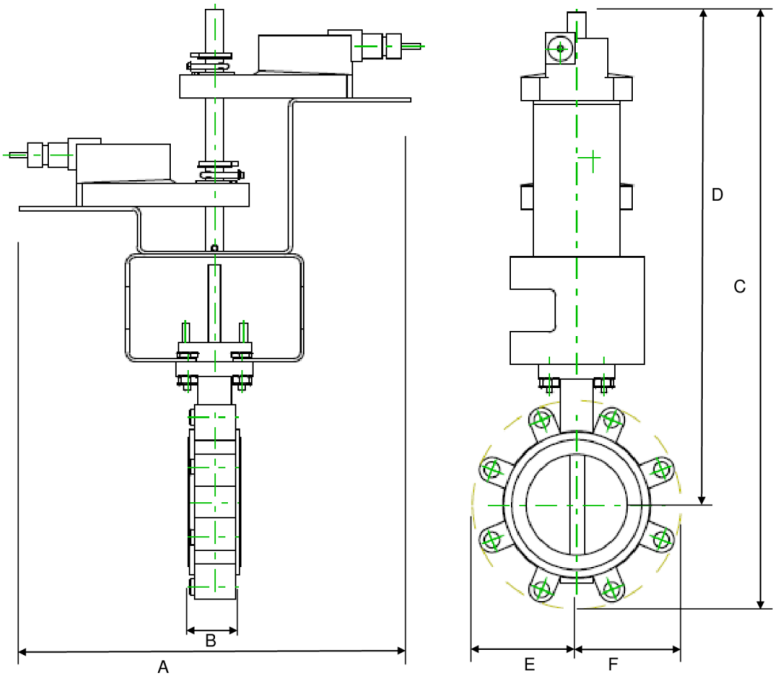
Product features

Flow/Mounting details



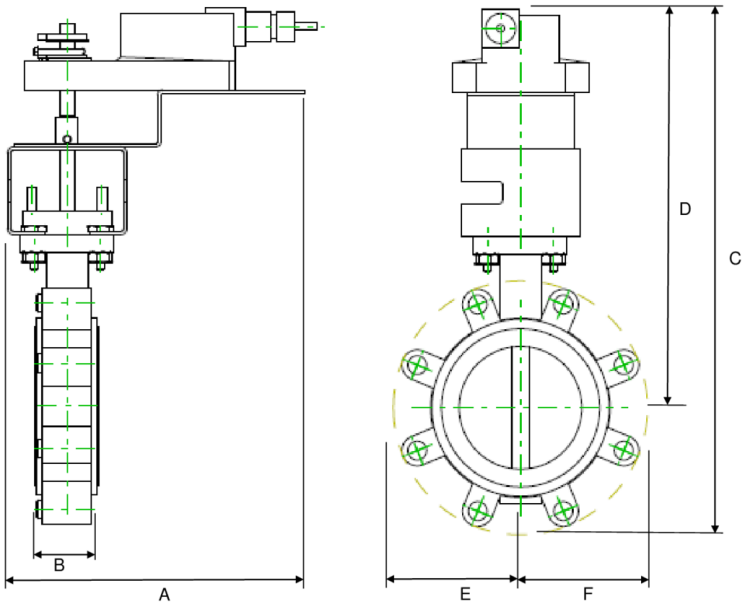
Dimensions

Type	DN	Weight
F6100-300SHP	100	29 lb [13 kg]



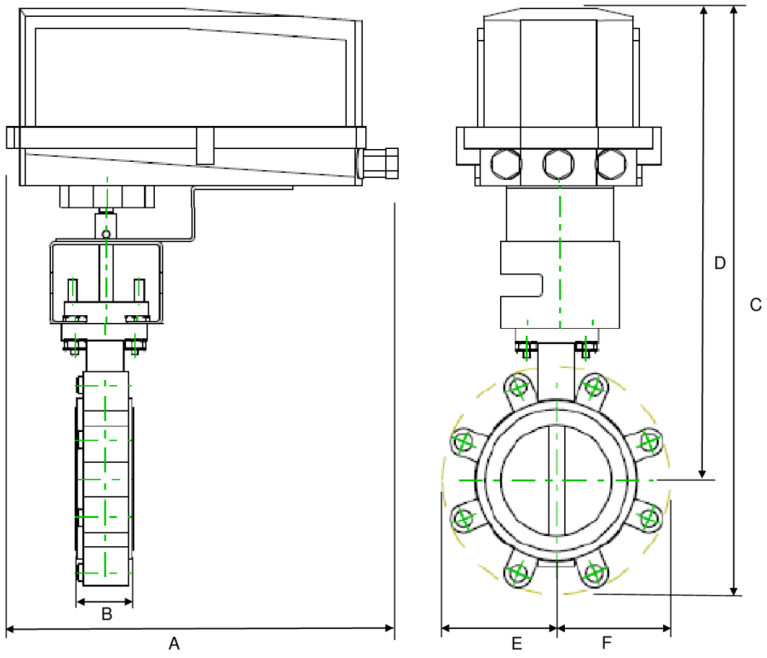
2*GM/2*GK

A	B	C	D	E	F	Number of Bolt Holes
23.8" [605]	2.2" [56]	25.1" [638]	20.9" [530]	4.4" [113]	4.4" [113]	8



GM/GK

A	B	C	D	E	F	Number of Bolt Holes
15.3" [388]	2.2" [56]	16.8" [426]	13.0" [331]	3.9" [100]	3.9" [100]	8

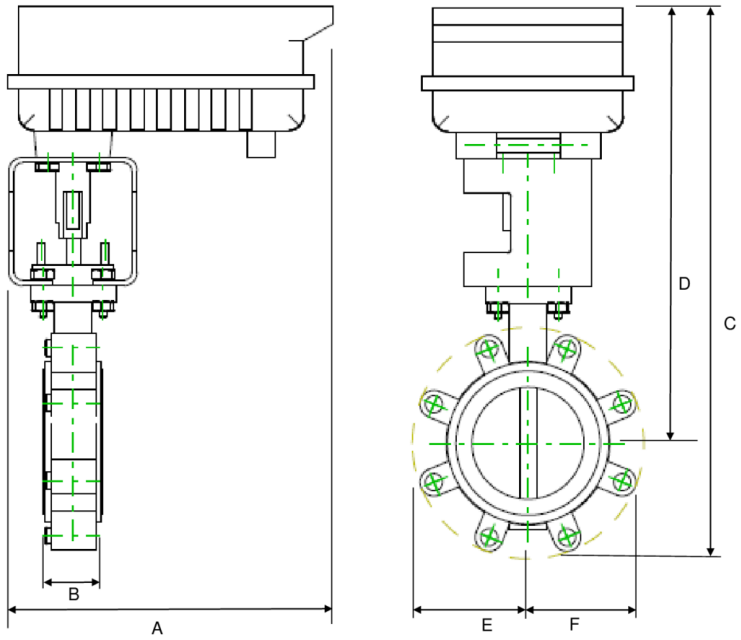


GK/GM N4

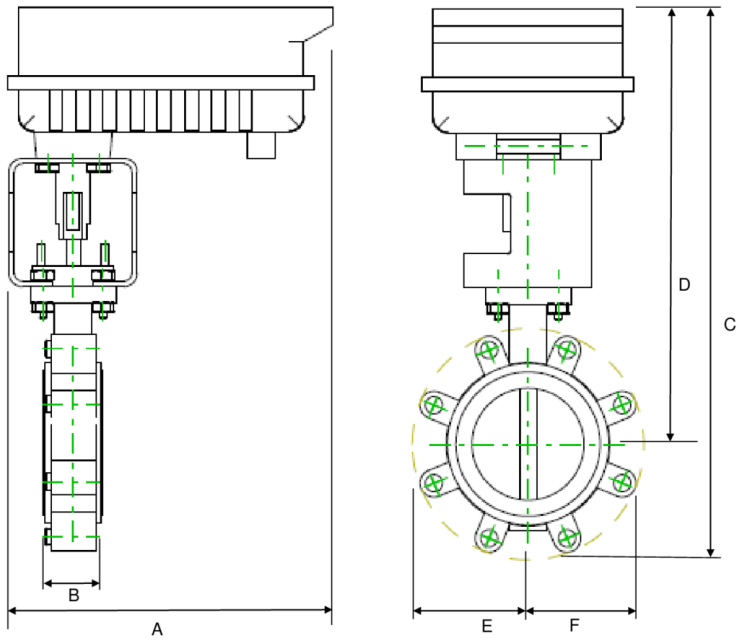
A	B	C	D	E	F	Number of Bolt Holes
10.9" [277]	2.2" [56]	18.7" [476]	14.0" [355]	4.9" [124]	4.9" [125]	8

Dimensions

PR



A	B	C	D	E	F	Number of Bolt Holes
9.1" [231]	2.2" [56]	17.2" [438]	13.5" [342]	3.9" [100]	3.9" [100]	8



A	B	C	D	E	F	Number of Bolt Holes
14.1" [358]	2.2" [56]	20.6" [523]	15.3" [388]	5.4" [137]	5.4" [137]	8
A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	2.2" [56]	23.0" [584]	18.3" [464]	4.9" [124]	4.9" [125]	8

Rotary actuator for butterfly valves

- Nominal voltage AC 24...240 V / DC 24...125 V
- Control On/Off, Floating point
- With two integrated auxiliary switches

Picture may differ from product

5-year warranty

NFC

Technical data

Electrical data	Nominal voltage	AC 24...240 V / DC 24...125 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...264 V / DC 19.2...137.5 V
	Power consumption in operation	20 W
	Power consumption in rest position	7 W
	Transformer sizing	with 24 V 20 VA / with 240 V 55 VA
	Auxiliary switch	2x SPDT, 1x 10° / 1x 0...90° (default setting 85°)
	Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V
	Connection protective earth	20...14 AWG, only copper wires
	Electrical Connection	Terminal blocks, (PE) Ground-Screw
	Overload Protection	electronic thoughout 0...90° rotation
Data bus communication	Communicative control	BACnet MS/TP Modbus RTU MP-Bus
	Number of nodes	BACnet / Modbus see interface description MP-Bus max. 16
Functional data	Position accuracy	±5%
	Manual override	hand lever
	Running Time (Motor)	35 s / 90°
	Running time motor variable	20...120 s
	Noise level, motor	65 dB(A)
	Position indication	Mechanical, integrated
Safety data	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP66/67
	Degree of protection NEMA/UL	NEMA 4X
	Housing	UL Enclosure Type 4X
	EMC	CE according to 2014/30/EU
	Low voltage directive	CE according to 2014/35/EU
	Certification IEC/EN	IEC/EN 60730-1 and IEC/EN 60730-2-14
	UL Approval	cULus according to UL60730-1A, UL60730-2-14 and CAN/CSA E60730-1 The UL marking on the actuator depends on the production site, the device is UL-compliant in any case

Technical data

Safety data	Overvoltage category	III
	Rated impulse voltage supply	4 kV
	Ambient humidity	Max. 100% RH
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Software Class	A
	Servicing	maintenance-free
Weight	Weight	8.1 lb [3.7 kg]

Safety notes

- This device has been designed for use in stationary heating, ventilation and air-conditioning systems and must not be used outside the specified field of application, especially in aircraft or in any other airborne means of transport.
- Caution: Power supply voltage!
- The device has a protective earthing. Incorrect connection of the protective earth can lead to hazards due to electrical shock.
- Only authorized specialists may carry out installation. All applicable legal or institutional installation regulations must be complied with during installation.
- Apart from the wiring compartment, the device may be opened only at the manufacturer's site. It does not contain any parts that can be replaced or repaired by the user.
- The device contains electrical and electronic components and must not be disposed of as household refuse. All locally valid regulations and requirements must be observed.
- The two switches integrated in the actuator are to be operated either on power supply voltage or at safety extra-low voltage. The combination power supply voltage/safety extra-low voltage is not permitted.
- For maintenance work, the correct valve position must be set via the control signal. Additionally, the actuator must be disconnected from the power source. The hand crank and manual override shall not be used as a safety measure to maintain the valve position.

Product features

Fields of application

The actuator is particularly suitable for utilisation in outdoor applications and is protected against the following weather conditions:
- UV radiation
- Dirt / Dust
- Rain / Snow
- Air humidity

Internal heating

An internal heater prevents condensation buildup.

Thanks to the integrated temperature and humidity sensor, the built-in heater automatically switches on/off.

Parametrizable actuators

The factory settings cover the most common applications.

Belimo Assistant 2 is required for parametrisation via Near Field Communication (NFC) and simplifies commissioning. Moreover, Belimo Assistant 2 provides a variety of diagnostic options.

The ZTH EU service tool provides a selection of both diagnostic and setting options.

Simple direct mounting

Simple direct mounting on the butterfly valve. The mounting orientation in relation to the butterfly valve can be selected in 90° (angle) increments.

Manual override

The valve can be manually operated using a hand crank. Unlocking is carried out manually by removing the hand crank.

Product features

High functional reliability The actuator is overload protected, requires no limit switches and automatically stops when the end stop is reached.

Innovative motorization The actuator uses the powerful Belimo M600 microchip in combination with the INFORM method. It provides the full starting torque from a standstill with high precision (sensorless INFORM-Drive by Prof. Schrödl).

Flexible signaling The actuator has one auxiliary switch with a fixed setting (10°) and one adjustable auxiliary switch (0...90°).

Accessories

Tools

Description	Type
Service-Tool for wired and wireless setup, on-site operation, and troubleshooting.	Belimo Assistant 2
Universal converter, with ZIP-USB function and Bluetooth to NFC conversion, for wired and wireless connection of the device to PC/ tablet/smartphone	Belimo One Tool
Connecting cable 16 ft [5 m], A: RJ11 6/4 ZTH EU, B: 6-pin for connection to service socket	ZK1-GEN

Mechanical accessories

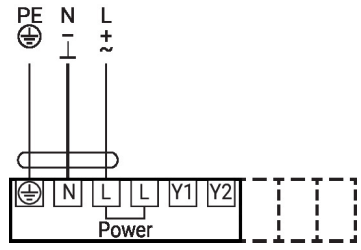
Description	Type
Hand crank for JR actuator	ZJR20

Electrical installation

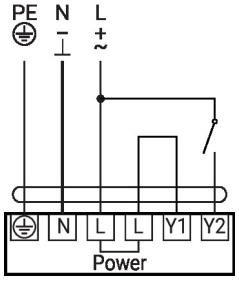
Caution: Power supply voltage!

Parallel connection of other actuators possible. Observe the performance data.

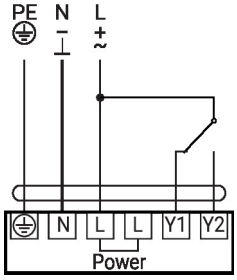
AC 24...240 V / DC 24...125 V



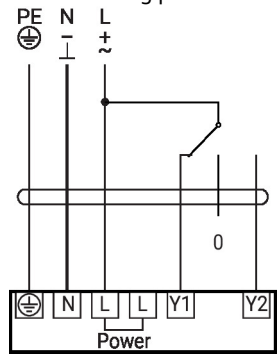
Control on/off



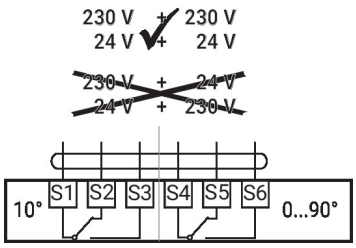
Control on/off



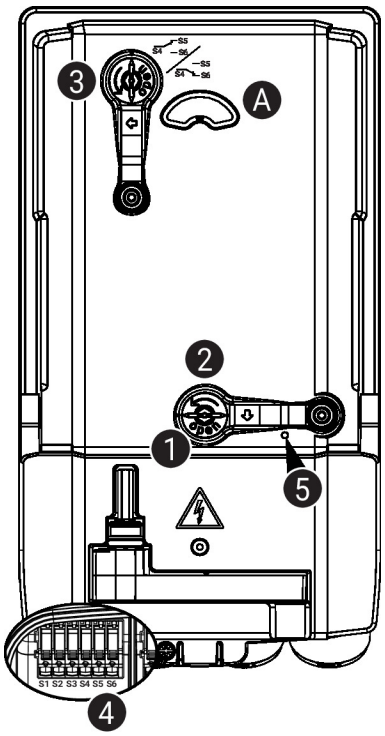
Control floating point



Auxiliary switch



Operating controls and indicators



5 LED display green

Off: No power supply or malfunction
On: In operation

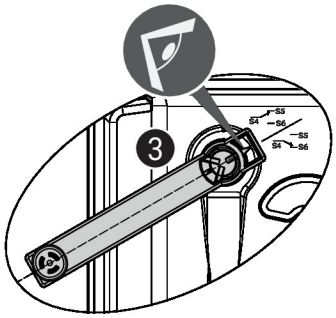
Auxiliary switch settings

⚠ **Note:** Perform settings on the actuator only in deenergised state.

For the auxiliary switch position settings, carry out points 1 to 4 successively.

1 Gear train disengagement
Opening the manual override cover and adjusting the hand crank.
Manual override is possible.

2 Manual override
Turn the hand crank until the desired switching position A is indicated and then remove the hand crank.



3 Auxiliary switch
For the auxiliary switch position settings, carry out points 1 to 4 successively.
Opening the auxiliary switch adjustment cover and adjusting the hand crank.
Turn the hand crank until the arrow points to the line.

4 Terminals
Connect continuity tester to S4 + S5 or to S4 + S6.
If the auxiliary switch should switch in the opposite direction, rotate the hand crank by 180°.

Service

Rotary Actuator, On/Off, Floating point, AC 24...240 V / DC 24...125 V, 90 Nm, Running Time (Motor) 35 s

Service

NFC connection

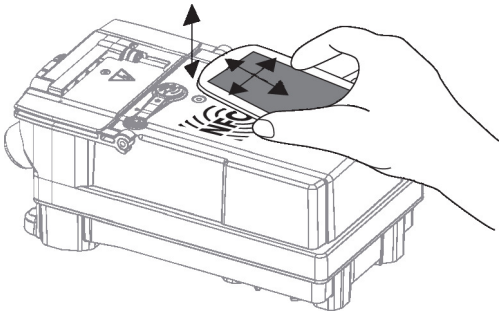
Belimo devices marked with the NFC logo can be operated with Belimo Assistant 2.

Requirement:

- NFC- or Bluetooth-capable smartphone
- Belimo Assistant 2 (Google Play and Apple AppStore)

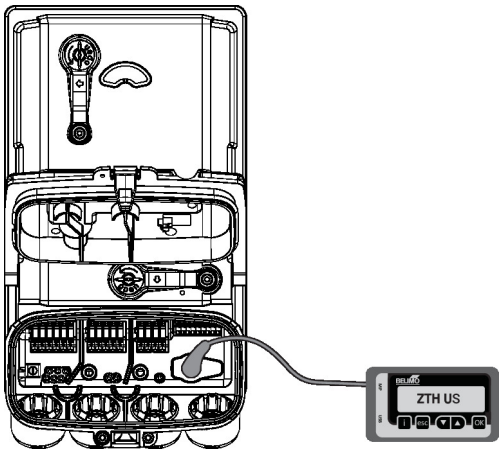
Align NFC-capable smartphone on the device so that both NFC antennas are superposed.

Connect Bluetooth-enabled smartphone via the Bluetooth-to-NFC converter ZIP-BT-NFC to the device. Technical data and operating instructions are shown in the ZIP-BT-NFC data sheet.

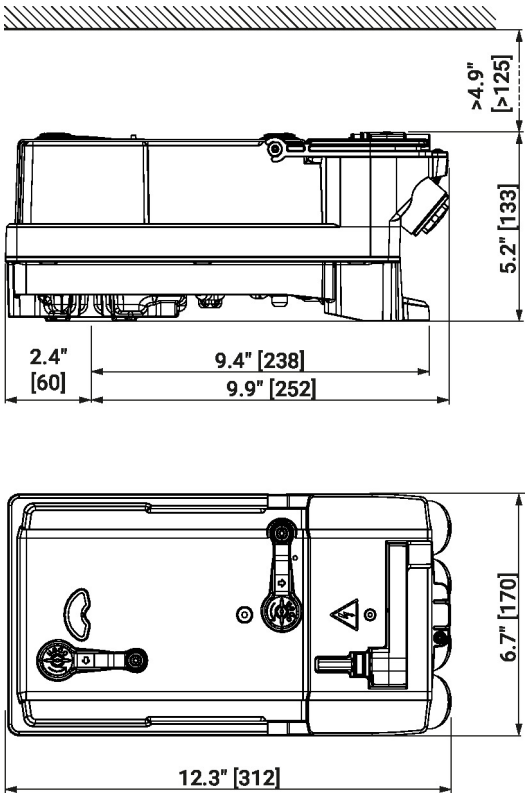


Tool connection

The Belimo One Tool can configure the actuator via the service socket.



Dimensions



Further documentation

- The complete product range for water applications
- Data sheets for butterfly valves
- Installation instructions for actuators and/or butterfly valves
- General notes for project planning
- Quick Guide – Belimo Assistant 2